

THE PERMANENCY OF THE CHARACTERS OF THE  
BACTERIA OF THE *BAC. COLI*-GROUP.

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In a paper upon the Bacterial Flora of Rachitic Stools,\* a table was given showing the cultural characters of certain Gram-negative bacteria of the *Bac. coli*-group. These differed more or less from one another and, from the gradual variations, the opinion was expressed that further cultivation might bring about such alterations as to reduce the number of races.

Certain of the bacteria were cultivated upon artificial media for over seven months, and occasionally examined during the period of cultivation. Many of the characters were found to be permanent, while a few proved to have been only temporary. The alterations applied to what may be called the negative characters, and it was evident that with some of the bacteria the absence of fermentative activity was only transient.

A reference to the table in the former paper (p.38), will assist in explaining the relation of the bacteria with the restored characters, to the others. Twelve bacteria were under observation; these were the first twelve that were obtained in the former research.

The characters of B<sub>1</sub>, B<sub>6</sub>, B<sub>13</sub> and B<sub>19</sub> were permanent, and the changes in the others were as follows:—

*Motility*: B<sub>4</sub> and B<sub>12</sub> became motile.

*Growth on gelatin*: B<sub>2</sub>, B<sub>4</sub> and B<sub>15</sub> finally grew as a flat expansion.

*Neutral-red*: B<sub>18</sub> developed a fluorescence under anaërobic conditions.

*Dextrose and Mannit*: The characters were permanent.

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\* *Antea*, p.36.

*Lactose:* B<sub>16</sub> finally produced acid and gas.

*Milk:* B<sub>14</sub> and B<sub>15</sub> ultimately produced acid and clot; B<sub>16</sub> produced acid.

*Saccharose:* B<sub>7</sub>, B<sub>14</sub>, B<sub>15</sub> and B<sub>16</sub> produced acid and gas, while B<sub>18</sub> developed acid.

Thus the races originally twelve in number were reduced to eight.

Summing these changes together, it becomes obvious that the bacterial activity towards dextrose and mannit is the most permanent of all the characters; then come the actions upon lactose and neutral-red, next the motility, followed by the action upon milk, and the growth upon gelatin; and finally, the most easily restored character is the fermentation of saccharose.